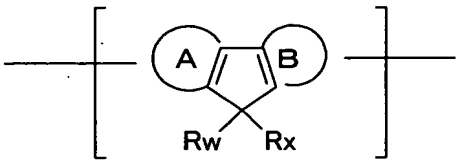
## CLAIMS

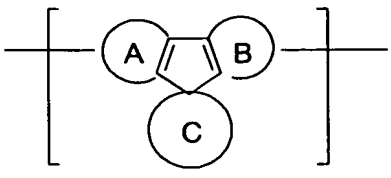
1. A polymer compound comprising a repeating unit of the following formula (1):




(1)

(wherein, ring A and ring B represent each independently an aromatic hydrocarbon ring optionally having a substituent, at least one of ring A and ring B is an aromatic hydrocarbon ring composed of a plurality of condensed benzene rings, two connecting bonds are present on ring A and/or ring B, $R_w$ and $R_x$ represent each independently a hydrogen atom, alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group, and $R_w$ and $R_x$ may mutually bond to form a ring).

2. The polymer compound according to Claim 1, wherein the repeating unit of the formula (1) is a repeating unit of the following formula (2):




(2)

(wherein, ring A and ring B represent each independently an aromatic hydrocarbon ring optionally having a substituent, at least one of ring A and ring B is an aromatic hydrocarbon ring composed of a plurality of condensed benzene rings, two connecting bonds are present on ring A and/or ring B, and ring C represent a hydrocarbon ring or heterocyclic ring).

3. The polymer compound according to Claim 1 or 2, wherein the aromatic hydrocarbon ring in ring A and the aromatic hydrocarbon ring in ring B have mutually different ring structures.

4. The polymer compound according to any one of Claims 1 to 3, wherein the number-average molecular weight in terms of polystyrene is $10^3$ to $10^8$.

5. The polymer compound according to any one of Claims 1 to 4, wherein the weight-average molecular weight in terms of polystyrene is $5\times10^4$ or more.

6. The polymer compound according to Claim 5, wherein the weight-average molecular weight in terms of polystyrene is $10^5$ or more.

7. The polymer compound according to any one of Claims 1 to 6, wherein when the aromatic hydrocarbon ring has a substituent, the substituent is selected from the group consisting of an alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine

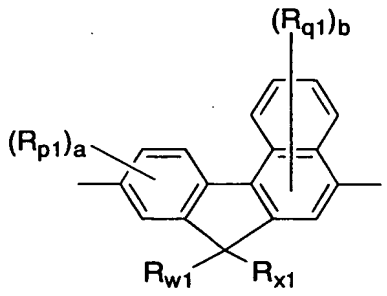
residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group.

8. The polymer compound according to any one of Claims 1 to 7, wherein the combination of ring A and ring B is a combination selected from a benzene ring, naphthalene ring, anthracene ring, tetracene ring, pentacene ring, pyrene ring, phenanthrene ring.

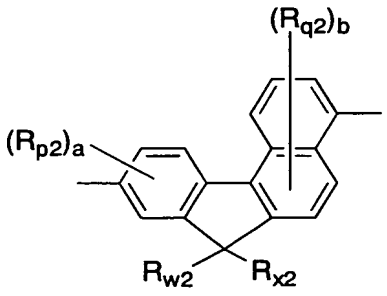
9. The polymer compound according to Claim 8, wherein the combination of ring A and ring B is a combination selected from any combinations of benzene ring and naphthalene ring, benzene ring and anthracene ring, benzene ring and phenanthrene ring, naphthalene ring and anthracene ring, naphthalene ring and phenanthrene ring, anthracene ring and phenanthrene ring.

10. The polymer compound according to Claim 9, wherein the ring A is a benzene ring and the ring B is a naphthalene ring.

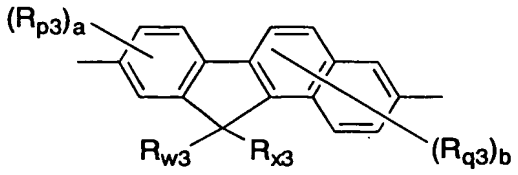
11. The polymer compound according to Claim 10, wherein the repeating unit of said formula (1) is a structure of the following formula (1-1), (1-2), (1-3) or (1-4):



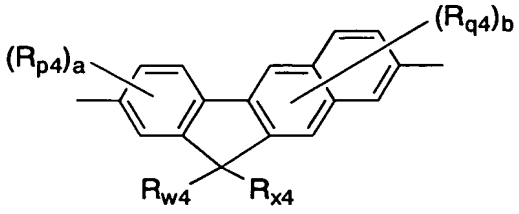

(1-1)




(1-2)




(1-3)




(1-4)

(wherein, $R_{p1}$, $R_{q1}$, $R_{p2}$, $R_{q2}$, $R_{p3}$, $R_{q3}$, $R_{p4}$ and $R_{q4}$ represent each independently an alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group. a represents an integer of 0 to 3, and b represents an integer of 0 to 5. When a plurality of $R_{p1}$s, $R_{q1}$s, $R_{p2}$s, $R_{q2}$s, $R_{p3}$s, $R_{q3}$s, $R_{p4}$s and $R_{q4}$s are present, these may be the same or different. $R_{w1}$, $R_{x1}$, $R_{w2}$, $R_{x2}$, $R_{w3}$, $R_{x3}$, $R_{w4}$ and $R_{x4}$ represent each independently a hydrogen atom, alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group, and $R_{w1}$ and $R_{x1}$, $R_{w2}$ and $R_{x2}$, $R_{w3}$ and $R_{x3}$, $R_{w4}$ and $R_{x4}$ may mutually bond to form a ring).

12. The polymer compound according to Claim 11, wherein the repeating unit of said formula (1) is a structure of said formula (1-1), and a=b=0.

13. The polymer compound according to Claim 11 or 12, composed only of any one of the repeating units of said formulae (1-1), (1-2), (1-3) and (1-4).

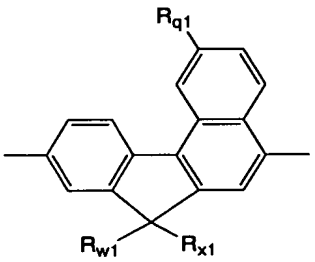
14. The polymer compound according to Claim 11, comprising two or more of the repeating units of said formulae (1-1), (1-2), (1-3) and (1-4).

15. The polymer compound according to any one of Claims 11 to 14, wherein in the repeating units of said formulae (1-1), (1-2), (1-3) and (1-4), $R_{w1}$ and $R_{x1}$, $R_{w2}$ and $R_{x2}$, $R_{w3}$ and $R_{x3}$, $R_{w4}$ and $R_{x4}$ are respectively the same.

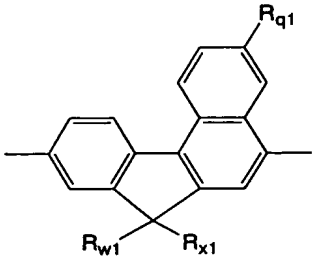
16. The polymer compound according to any one of Claims 11 to 15, wherein $R_{w1}$, $R_{x1}$, $R_{w2}$, $R_{x2}$, $R_{w3}$, $R_{x3}$, $R_{w4}$ and $R_{x4}$ represent each independently an aryl group or arylalkyl group.

17. The polymer compound according to Claim 11, wherein in said formulae (1-1), (1-2), (1-3) and (1-4), a=0 and b=1.

18. The polymer compound according to Claim 17, wherein said formulae (1-1) is the following formula (1-1-4) or (1-1-5):




(1-1-4)



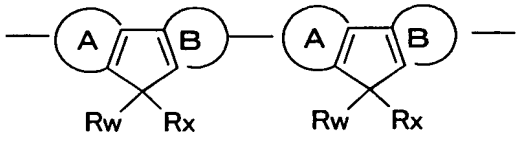

(1-1-5)

(wherein, $R_{w1}$, $R_{x1}$ and $R_{q1}$ have the same meanings as described

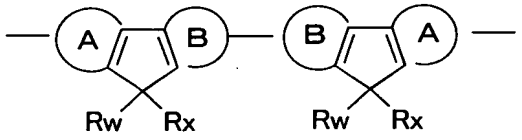
above).

19. The polymer compound according to Claim 18, wherein in said formulae (1-1-4) and (1-1-5), $R_{q1}$ represents an alkyl group having a branched structure or cyclic structure.

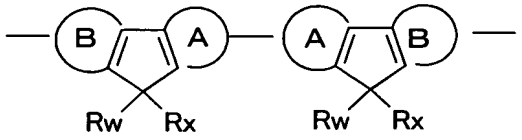
20. The polymer compound according to any one of Claims 1 to 19, comprising one or more of structures of the following formulae (31), (32) and (33):




(31)




(32)




(33)

(wherein, ring A and ring B represent each independently an aromatic hydrocarbon ring optionally having a substituent, the aromatic hydrocarbon ring in ring A and the aromatic hydrocarbon ring in ring B have mutually different ring structures, a connecting bond is present on both ring A and ring B, $R_w$ and $R_x$ represent each independently a hydrogen atom, alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine

residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group, and $R_w$ and $R_x$ may mutually bond to form a ring).

21. The polymer compound according to Claim 20, wherein ring B represents an aromatic hydrocarbon ring composed of a plurality of condensed benzene rings, the aromatic hydrocarbon ring in ring A and the aromatic hydrocarbon ring composed of a plurality of condensed benzene rings in ring B have mutually different ring structures, a structure of said formula (31) is contained, and the proportion of a B ring-B ring chain shown in said formula (32) is 0.4 or less based on all chains containing ring B in the polymer compound.

22. The polymer compound according to Claim 20 or 21, wherein it is a copolymer containing the repeating unit of said formula (1) in a ratio of 50 mol% or more based on all repeating units, and when the proportion that the repeating unit of the formula (1) is adjacent to the repeating unit of the formula (1) is represented by $Q_{11}$, $Q_{11}$ is 25% or more.

23. The polymer compound according to any one of Claims 1 to 22, further comprising a repeating unit of the following formula (3), (4), (5) or (6):

$$-Ar_1- \qquad (3)$$

$$-(Ar_2-X_1)_{ff}-Ar_3- \qquad (4)$$

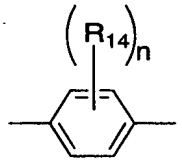
$$-Ar_4-X_2- \qquad (5)$$

$$-X_3- \qquad (6)$$

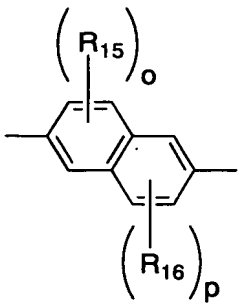
(wherein, $Ar_1$, $Ar_2$, $Ar_3$ and $Ar_4$ represent each independently an arylene group, divalent heterocyclic group or divalent group

having a metal complex structure. $X_1$, $X_2$ and $X_3$ represent each independently $-CR_9=CR_{10}-$, $-C\equiv C-$, $-N(R_{11})-$ or $-(SiR_{12}R_{13})_m-$. $R_9$ and $R_{10}$ represent each independently a hydrogen atom, alkyl group, aryl group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group. $R_{11}$, $R_{12}$ and $R_{13}$ represent each independently a hydrogen atom, alkyl group, aryl group, mono-valent heterocyclic group, arylalkyl group or substituted amino group. ff represents 1 or 2. m represents an integer of 1 to 12. When a plurality of $R_9$s, $R_{10}$s, $R_{11}$s, $R_{12}$s and $R_{13}$s are present, these may be the same or different).

24. The polymer compound according to Claim 23, wherein the repeating unit of said formula (3) is a repeating unit of the following formula (7), (8), (9), (10), (11) or (12):

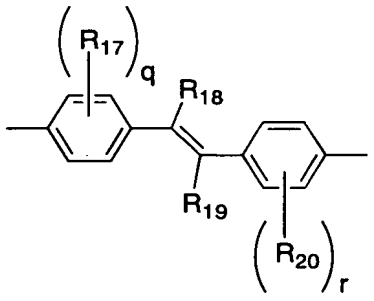

(7)

(wherein, $R_{14}$ represents an alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group. n represents an integer of 0 to 4. When a plurality of $R_{14}$s are present, these may be the same or different.)



(8)

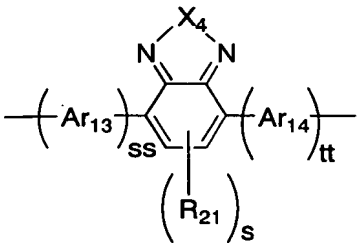
(wherein, $R_{15}$ and $R_{16}$ represent each independently an alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group. o and p represent each independently an integer of 0 to 3. When a plurality of $R_{15}$s and $R_{16}$s are present, these may be the same or different.)



(9)

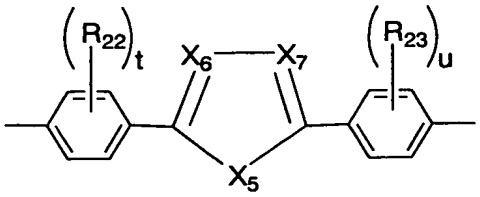
(wherein, $R_{17}$ and $R_{20}$ represent each independently an alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine

residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group. q and r represent each independently an integer of 0 to 4. $R_{18}$ and $R_{19}$ represent each independently a hydrogen atom, alkyl group, aryl group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group. When a plurality of $R_{17}$s and $R_{20}$s are present, these may be the same or different.)



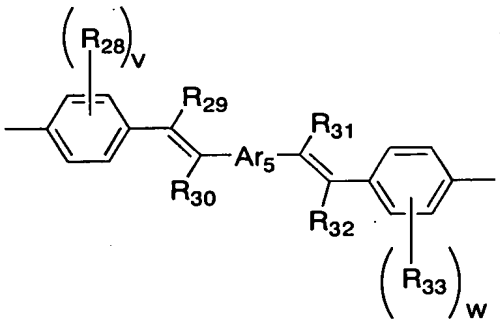
(10)

(wherein, $R_{21}$ represents an alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group. s represents an integer of 0 to 2. $Ar_{13}$ and $Ar_{14}$ represent each independently an arylene group, divalent heterocyclic group or divalent group having a metal complex structure. ss and tt represent each independently 0 or 1. $X_4$ represents O, S, SO, $SO_2$, Se or Te. When a plurality of $R_{21}$s are present, these may be the same or different.)



(11)

(wherein, $R_{22}$ and $R_{23}$ represent each independently an alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group. t and u represent each independently an integer of 0 to 4. $X_5$ represents O, S, $SO_2$, Se, Te, N-$R_{24}$ or $SiR_{25}R_{26}$. $X_6$ and $X_7$ represent each independently N or C-$R_{27}$. $R_{24}$, $R_{25}$, $R_{26}$ and $R_{27}$ represent each independently a hydrogen atom, alkyl group, aryl group, arylakyl group or mono-valent heterocyclic group. When a plurality of $R_{22}$s, $R_{23}$s and $R_{27}$s are present, these may be the same or different.)

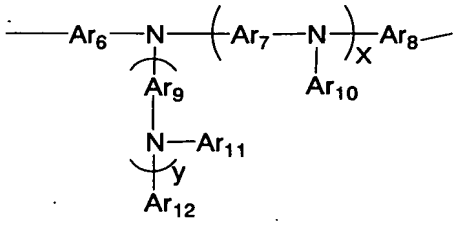


(12)

(wherein, $R_{28}$ and $R_{33}$ represent each independently an alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group,

arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group. v and w represent each independently an integer of 0 to 4. $R_{29}$, $R_{30}$, $R_{31}$ and $R_{32}$ represent each independently a hydrogen atom, alkyl group, aryl group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group. $Ar_5$ represents an arylene group, divalent heterocyclic group or divalent group having a metal complex structure. When a plurality of $R_{28}$s and $R_{33}$s are present, these may be the same or different).

25. The polymer compound according to Claim 23, wherein the repeating unit of said formula (4) is a repeating unit of the following formula (13):

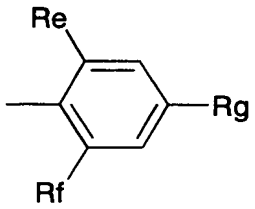


(13)

(wherein, $Ar_6$, $Ar_7$, $Ar_8$ and $Ar_9$ represent each independently an arylene group or divalent heterocyclic group. $Ar_{10}$, $Ar_{11}$ and $Ar_{12}$ represent each independently an aryl group or mono-valent heterocyclic group. $Ar_6$, $Ar_7$, $Ar_8$, $Ar_9$ and $Ar_{10}$ may have a substituent. x and y represent each independently 0 or a positive integer).

26. The polymer compound according to Claim 25, wherein in

the repeating unit of said formula (13), $Ar_{10}$, $Ar_{11}$ and $Ar_{12}$ are each independently selected from groups of the following formula (13-1):




(13-1)

(wherein, Re, Rf and Rg represent each independently an alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, silyloxy group, substituted silyloxy group, mono-valent heterocyclic group or halogen atom).

27. The polymer compound according to Claim 25 or 26, wherein in the repeating unit of said formula (13), x+y=1.

28. The polymer compound according to any one of Claims 25 to 27, wherein the compound comprises each one or more of repeating units of said formula (1) and repeating units of said formula (13), the sum of these repeating units is 50 mol% or more based on all repeating units, and the molar ratio of the sum of repeating units of the formula (1) to the sum of repeating units of the formula (13) is 98:2 to 60:40.

29. The polymer compound according to Claim 28, wherein the compound comprises 1 to 3 repeating units of said formula (13).

30. The polymer compound according to Claim 29, wherein the

compound comprises one repeating unit of said formula (1) and 1 or 2 repeating units of said formula (13).

31. The polymer compound according to any one of Claims 28 to 30, wherein the sum of repeating units of said formula (1) and repeating units of said formula (13) is 90 mol% or more based on all repeating units.

32. The polymer compound according to any one of Claims 28 to 31, wherein the repeating unit of said formula (1) is a repeating unit of said formula (1-1), (1-2), (1-3) or (1-4).

33. The polymer compound according to Claim 32, wherein the repeating unit of said formula (1) is a repeating unit of said formula (1-1) or (1-2).

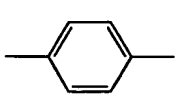
34. The polymer compound according to Claim 32, wherein the repeating unit of said formula (1) is a repeating unit of said formula (1-1) and a=b=0.

35. The polymer compound according to any one of Claims 25 to 34, wherein in the repeating unit of said formula (13), y=0 and x=1.

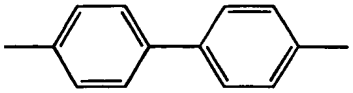
36. The polymer compound according to any one of Claims 25 to 34, wherein in the repeating unit of said formula (13), y=1 and x=0.

37. The polymer compound according to any one of Claims 25, 26 and 28 to 34, wherein in the repeating unit of said formula (13), y=0 and x=0.

38. The polymer compound according to any one of Claims 25 to 35, wherein in the repeating unit of said formula (13), $Ar_7$ is represented by the following formula (19-1) or (19-2):



(19-1)

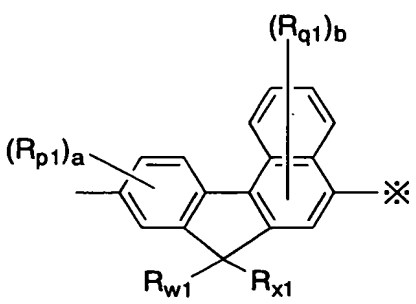


(19-2)

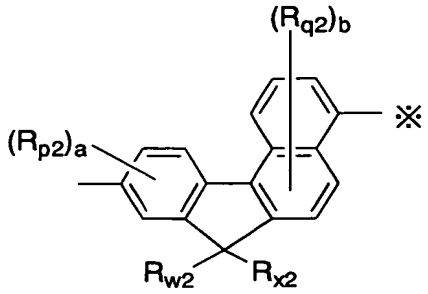
(wherein, benzene rings contained in structures of (19-1) and (19-2) may have each independently 1 to 4 substituents. These substituents may be mutually the same or different. Also, a plurality of substituents may be connected to form a ring. Further, another aromatic hydrocarbon ring or heterocyclic ring may be condensed next to the benzene ring).

39. The polymer compound according to any one of Claims 25 to 38, wherein it is a copolymer containing the repeating unit of said formula (13) in a ratio of 15 to 50 mol% based on all repeating units, and when the proportion that the repeating unit of the formula (13) is adjacent to the repeating unit of the formula (13) is represented by $Q_{22}$, $Q_{22}$ is 15 to 50% or more.

40. The polymer compound according to any one of Claims 25 to 38, wherein it comprises said formula (13) and the following formula (1-1) or (1-2), and when the proportion that the formula (13) is bonded further to the formula (13) is represented by $Q_{22}$ and the proportion that the formula (13) is bonded to a mark * of the formula (1-1) or the formula (1-2) is represented by $Q_{21N}$, $Q_{22}$ is in a range of 15 to 50% and $Q_{21N}$ is in a range of 20 to 40%:



(1-1)

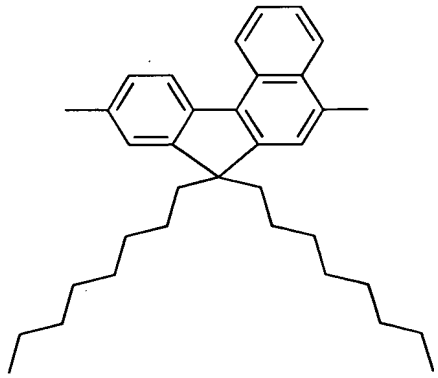


(1-2)

(wherein, $R_{p1}$, $R_{q1}$, $R_{p2}$, $R_{q2}$, a, b, $R_{w1}$, $R_{x1}$, $R_{w2}$ and $R_{x2}$ represent the same meanings as described above).

41. The polymer compound according to Claim 13, wherein the compound is composed only of a repeating unit of said formula (1-1).

42. The polymer compound according to Claim 41, wherein the repeating unit of said formula (1-1) is a repeating unit of the following formula (16).

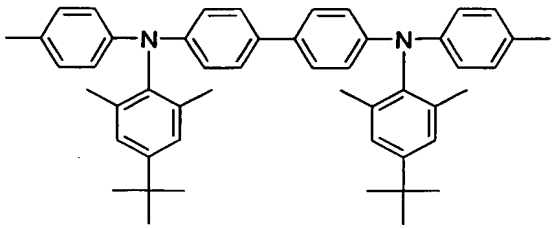


(16)

43. The polymer compound according to Claim 41 or 42, wherein the solution curve of GPC is single-peaked and the degree of dispersion (weight-average molecular weight/number-average molecular weight) is 1.5 or more and 12 or less.

44. The polymer compound according to any one of Claims 38 to 40, wherein the compound is composed only of a repeating unit

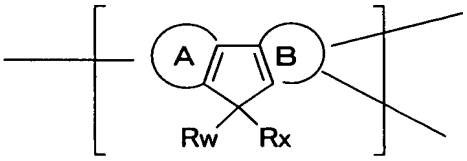
of said formula (16) and a repeating unit of the following formula (17).



(17)

45. The polymer compound according to any one of Claims 25 to 40, 44, wherein the solution curve of GPC is double-peaked.

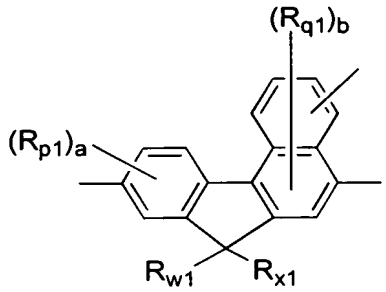
46. The polymer compound according to any one of Claims 1 to 45, wherein when the ratio of the repeating unit of said formula (1) 100 mol%, a branched structure of the following formula (41) is contained in a ratio of 0.1 mol% or more:



(41)

(wherein, ring A, ring B, $R_w$ and $R_x$ represent the same meanings as described above, and three connecting bonds are present on ring A and/or ring B).

47. The polymer compound according to Claim 46, wherein the compound contains a repeating unit of the following formula (41-1) in a ratio of 0.1 mol% or more based on the repeating unit of said formula (1):



(41-1)

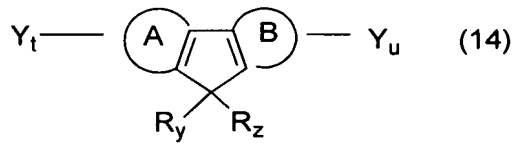
(wherein, $R_{p1}$, $R_{q1}$, $R_{w1}$, $R_{x1}$, a and b represent the same meanings as described above).

48. The polymer compound according to any one of Claims 1 to 47, wherein one or more molecular chain ends of the polymer compound have an end group selected from the group consisting of a mono-valent heterocyclic group, mono-valent aromatic amine group, mono-valent group derived from a heterocyclic coordinated metal complex and aryl group having a formula weight of 90 or more.

49. The polymer compound according to Claim 48, wherein the end group is a condensed ring compound group.

50. The polymer compound according to Claim 48, wherein the end group is an aryl group having a substituent.

51. A method of producing the polymer compound according to any one of Claims 1 to 50, comprising using a compound of the formula (14):

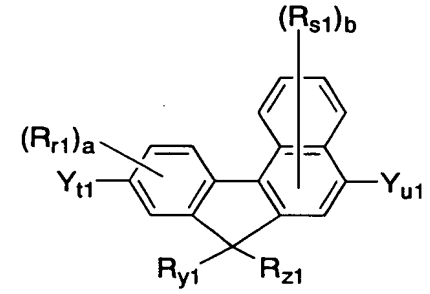


(14)

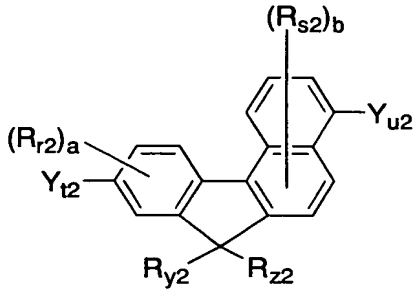
(wherein, $R_y$ and $R_z$ represent each independently a hydrogen atom, alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy

group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group, $R_y$ and $R_z$ may mutually bond to form a ring, $Y_t$ and $Y_u$ represent each independently a substituent correlated with polymerization, and are bonded to ring A and/or ring B.) as one raw material and polymerizing this.

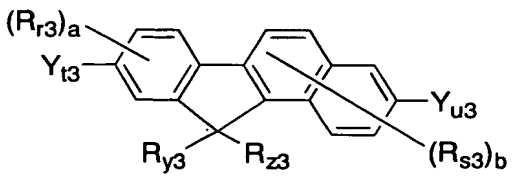
52. The production method according to Claim 51, wherein the formula (14) is a formula (14-1), (14-2), (14-3) or (14-4):



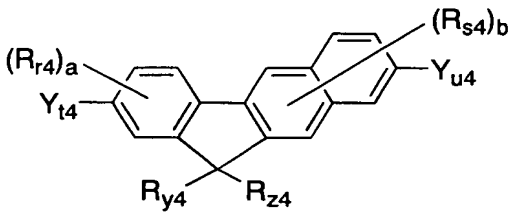

(14-1)




(14-2)




(14-3)




(14-4)

(wherein, $R_{r1}$, $R_{s1}$, $R_{r2}$, $R_{s2}$, $R_{r3}$, $R_{s3}$, $R_{r4}$ and $R_{s4}$ represent each independently an alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group,

arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group. a represents an integer of 0 to 3, and b represents an integer of 0 to 5, and when a plurality of $R_{r1}$s, $R_{s1}$s, $R_{r2}$s, $R_{s2}$s, $R_{r3}$s, $R_{s3}$s, $R_{r4}$s and $R_{s4}$s are present, these may be the same or different. $R_{y1}$, $R_{z1}$, $R_{y2}$, $R_{z2}$, $R_{y3}$, $R_{z3}$, $R_{y4}$ and $R_{z4}$ represent each independently a hydrogen atom, alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group, and $R_{y1}$ and $R_{z1}$, $R_{y2}$ and $R_{z2}$, $R_{y3}$ and $R_{z3}$, $R_{y4}$ and $R_{z4}$ may mutually bond to form a ring. $Y_{t1}$, $Y_{u1}$, $Y_{t2}$, $Y_{u2}$, $Y_{t3}$, $Y_{u3}$, $Y_{t4}$ and $Y_{u4}$ represent each independently a substituent correlated with polymerization).

53. The production method according to Claim 51 or 52, wherein a compound of any of the following formulae (21) to (24) is used as a raw material and polymerized, in addition to the compound of said formula (14):

$$Y_5-Ar_1-Y_6 \qquad (21)$$

$$Y_7-\left(-Ar_2-X_1\right)_{ff}-Ar_3-Y_8 \qquad (22)$$

$$Y_9-Ar_4-X_2-Y_{10} \qquad (23)$$

$$Y_{11}-X_3-Y_{12} \qquad (24)$$

(wherein, $Ar_1$, $Ar_2$, $Ar_3$, $Ar_4$, ff, $X_1$, $X_2$ and $X_3$ represent the same meanings as described above. $Y_5$, $Y_6$, $Y_7$, $Y_8$, $Y_9$, $Y_{10}$, $Y_{11}$ and $Y_{12}$ represent each independently a substituent correlated with polymerization).

54. The production method according to any one of Claims 51 to 53, wherein compounds of the following formulae (25) and (27) are used as a raw material and polymerized, in addition to the compounds of said formula (14), said formula (15-1) and said formulae (21) to (24):

$$E_1-Y_{13} \qquad (25)$$

$$E_2-Y_{14} \qquad (27)$$

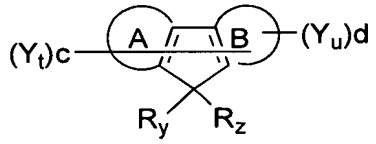
(wherein, E1 and E2 represent a mono-valent heterocyclic group, aryl group having a substituent or mono-valent aromatic amine group, and $Y_{13}$ and $Y_{14}$ represent each independently a substituent correlated with polymerization).

55. The production method according to any one of Claims 51 to 54, wherein the substituent correlated with polymerization is selected each independently from a halogen atom, alkylsulfonate group, arylsulfonate group and arylalkylsulfonate group, and polymerized in the presence of a nickel 0-valent complex.

56. The production method according to any one of Claims 51 to 54, wherein the substituent correlated with polymerization is selected each independently from a halogen atom,

alkylsulfonate group, arylsulfonate group, arylalkylsulfonate group, $-B(OH)_2$ or borate group, the ratio of the sum of mol numbers of a halogen atom, alkylsulfonate group, arylsulfonate group and arylalkylsulfonate group carried on all raw material compounds to the sum of mol numbers of $-B(OH)_2$ and borate group is substantially 1, and polymerization is carried out using a nickel or palladium catalyst.

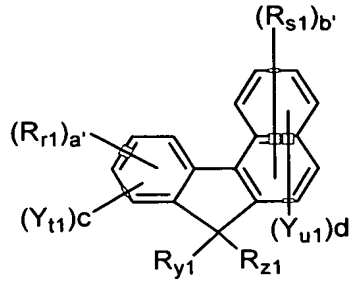
57. A method of producing the polymer compound according to any one of Claims 1 to 50, comprising using a compound of the following formula (14B):



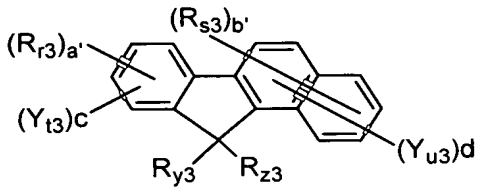

(14B)

(wherein, $R_y$, $R_z$, $Y_t$ and $Y_u$ represent the same meanings as described above. c represents 0 or a positive integer, d represents 0 or a positive integer, and $3 \leq c+d \leq 6$) as one raw material and polymerizing this.

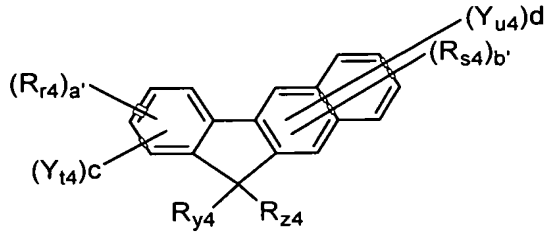
58. The production method according to Claim 57, wherein the compound of said formula (14B) is a compound of the following formula (14-5), (14-6) or (14-7):




(14-5)




(14-6)



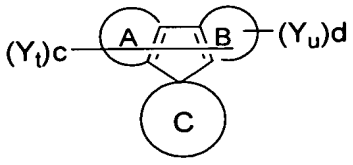

(14-7)

(

wherein, $R_{r1}$, $R_{s1}$, $R_{r2}$, $R_{s2}$, $R_{r3}$, $R_{s3}$, $R_{r4}$, $R_{s4}$, $R_{y1}$, $R_{z1}$, $R_{y2}$, $R_{z2}$, $R_{y3}$, $R_{z3}$, $R_{y4}$, $R_{z4}$, $Y_{t1}$, $Y_{u1}$, $Y_{t3}$, $Y_{u3}$, $Y_{t4}$ and $Y_{u4}$ represent the same meanings as described above, a' represents an integer of 0 to 4, b' represents an integer of 0 to 5, c represents an integer of 0 to 3, d represents an integer of 0 to 5, $a'+c \leq 4$, $b'+d \leq 6$, and $3 \leq c+d \leq 6$. When a plurality of $R_{r1}$s, $R_{s1}$, $R_{r2}$s, $R_{s2}$s, $R_{r3}$s, $R_{s3}$s, $R_{r4}$s, $R_{s4}$s, $R_{y1}$s, $R_{z1}$s, $Y_{t1}$s, $Y_{u1}$s, $Y_{t3}$s, $Y_{u3}$s, $Y_{t4}$s and $Y_{u4}$s are present, these may be the same or different).

59. A compound of said formula (14B).

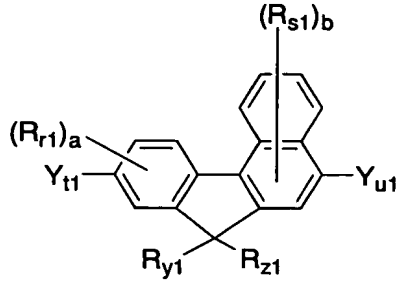
60. A compound of the following formula (14C):



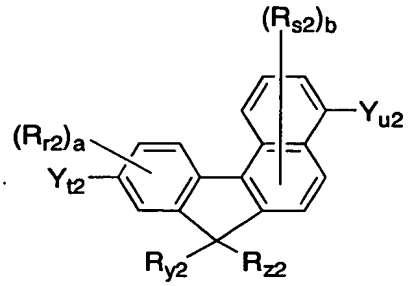

(14C)

(wherein, ring A, ring B and ring C represent the same meanings as described above. $Y_t$ and $Y_u$ represent the same meanings as described above. c represents 0 or a positive integer, d represents 0 or a positive integer, and $2 \leq c+d \leq 6$).

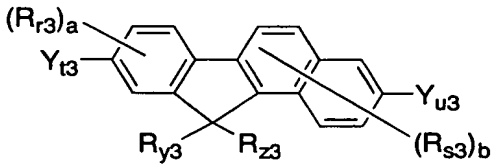
61. A compound of the following formula (14-1), (14-2), (14-3) or (14-4):



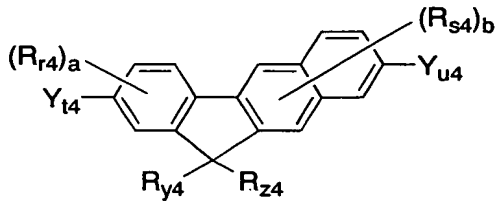

(14-1)




(14-2)




(14-3)

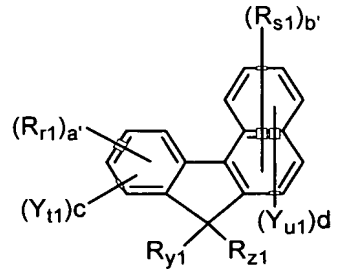



(14-4)

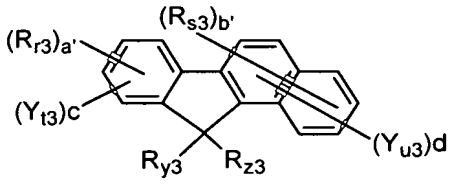
(wherein, $R_{r1}$, $R_{s1}$, $R_{r2}$, $R_{s2}$, $R_{r3}$, $R_{s3}$, $R_{r4}$ and $R_{s4}$ represent each independently an alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group. a represents an integer of 0 to 3, and b represents an integer of 0 to 5, and when a plurality of $R_{r1}$s, $R_{s1}$s, $R_{r2}$s, $R_{s2}$s, $R_{r3}$s, $R_{s3}$s, $R_{r4}$s and $R_{s4}$s are present, these may be the same or different. $R_{y1}$, $R_{z1}$, $R_{y2}$, $R_{z2}$, $R_{y3}$, $R_{z3}$, $R_{y4}$ and $R_{z4}$ represent each independently a hydrogen atom, alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group,

arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group, and $R_{y1}$ and $R_{z1}$, $R_{y2}$ and $R_{z2}$, $R_{y3}$ and $R_{z3}$, $R_{y4}$ and $R_{z4}$ may mutually bond to form a ring. $Y_{t1}$, $Y_{u1}$, $Y_{t2}$, $Y_{u2}$, $Y_{t3}$, $Y_{u3}$, $Y_{t4}$ and $Y_{u4}$ represent each independently a substituent correlated with polymerization).

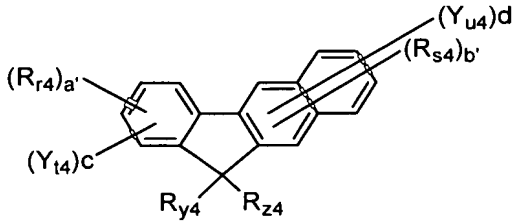
62. A compound of the following formula (14-5), (14-6) or (14-7):




(14-5)




(14-6)




(14-7)

(wherein, $R_{r1}$, $R_{s1}$, $R_{r2}$, $R_{s2}$, $R_{r3}$, $R_{s3}$, $R_{r4}$, $R_{s4}$, $R_{y1}$, $R_{z1}$, $R_{y2}$, $R_{z2}$, $R_{y3}$, $R_{z3}$, $R_{y4}$, $R_{z4}$, $Y_{t1}$, $Y_{u1}$, $Y_{t3}$, $Y_{u3}$, $Y_{t4}$ and $Y_{u4}$ represent the same meanings as described above, a' represents an integer of 0 to 4, b' represents an integer of 0 to 5, c represents an integer of 0 to 3, d represents an integer of 0 to 5, $a'+c \leq 4$, $b'+d \leq 6$,

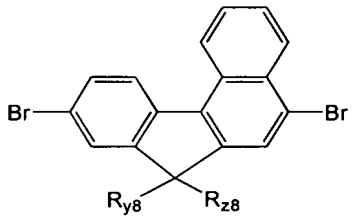
and $3 \leq c+d \leq 6$. When a plurality of $R_{r1}$s, $R_{s1}$, $R_{r2}$s, $R_{s2}$s, $R_{r3}$s, $R_{s3}$s, $R_{r4}$s, $R_{s4}$s, $R_{y1}$s, $R_{z1}$s, $Y_{t1}$s, $Y_{u1}$s, $Y_{t3}$s, $Y_{u3}$s, $Y_{t4}$s and $Y_{u4}$s are present, these may be the same or different).

63. The compound according to any one of Claims 59 to 62, wherein the substituent correlated with polymerization is selected each independently from a halogen atom, alkylsulfonate group, arylsulfonate group and arylalkylsulfonate group.

64. A compound of said formula (14-1), (14-3) or (14-4) wherein $Y_{t1}$, $Y_{u1}$, $Y_{t3}$, $Y_{u3}$, $Y_{t4}$ and $Y_{u4}$ represent a bromine atom.

65. The compound according to Claim 64, wherein a and b in said formula (14-1), (14-3) or (14-4) is 0.

66. A compound of the following formula (14-8):

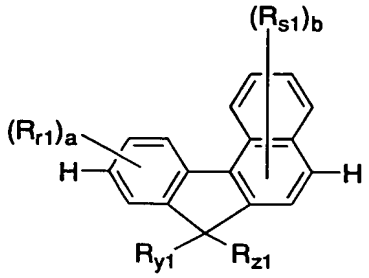



(14-8)

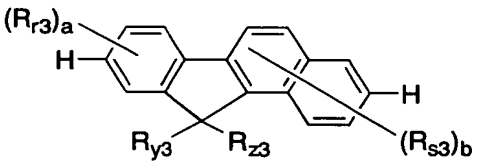
(wherein, $R_{y8}$ and $R_{z8}$ represent each independently a hydrogen atom, alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group, and $R_{y8}$ and $R_{z8}$ may mutually bond to form a ring).

67. A method of producing the compound according to any one

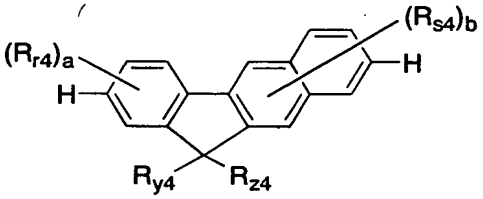
of Claims 64 to 66, comprising brominating a compound of the following formula (14-9), (14-10) or (14-11) with a brominating agent:



(14-9)



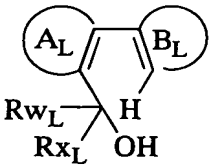
(14-10)



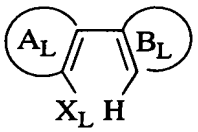
(14-11)

(wherein, $R_{r1}$, $R_{s1}$, $R_{r3}$, $R_{s3}$, $R_{r4}$, $R_{s4}$, $R_{y1}$, $R_{z1}$, $R_{y3}$, $R_{z3}$, $R_{y4}$, $R_{z4}$, and a and b have the same meanings as described above. H represents a hydrogen atom).

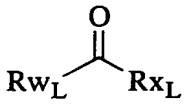
68. A method of producing a compound of the following formula (2-1), comprising reacting a compound of the following formula (2-2) with a metallizing agent to convert $X_L$ into $M_L$, then, reacting this with a compound of the following formula (2-3):



(2-1)



(2-2)



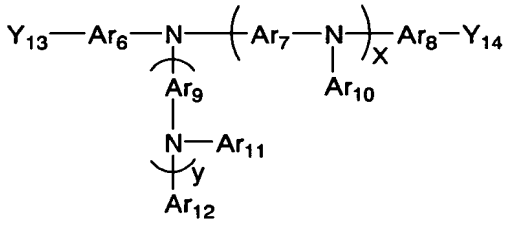
(2-3)

(wherein, ring $A_L$ and ring $B_L$ represent each independently an aromatic hydrocarbon ring optionally having a substituent, at least one of ring $A_L$ and ring $B_L$ is an aromatic hydrocarbon ring

composed of a plurality of condensed benzene rings. $R_{wL}$ and $R_{xL}$ represent each independently a hydrogen atom, alkyl group, alkoxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkoxy group, arylalkylthio group, arylalkenyl group, arylalkynyl group, amino group, substituted amino group, silyl group, substituted silyl group, halogen atom, acyl group, acyloxy group, imine residue, amide group, acid imide group, mono-valent heterocyclic group, carboxyl group, substituted carboxyl group or cyano group, and $R_{wL}$ and $R_{xL}$ may mutually bond to form a ring. $X_L$ represents a bromine atom or iodine atom. $M_L$ represents a metal atom or its salt).

69. The compound according to any one of Claims 57 to 62, wherein the substituents correlated with polymerization are selected each independently from $-B(OH)_2$ or borate groups.

70. A method of producing the polymer compound according to any one of Claims 25 to 40, 44 to 50 comprising using compounds of said formula (14) and the following formula (15-1):



(15-1)

(wherein, $Ar_6$, $Ar_7$, $Ar_8$ and $Ar_9$ represent each independently an arylene group or divalent heterocyclic group. $Ar_{10}$, $Ar_{11}$ and $Ar_{12}$ represent each independently an aryl group or mono-valent heterocyclic group. $Ar_6$, $Ar_7$, $Ar_8$, $Ar_9$ and $Ar_{10}$ may have a

substituent. x and y represent each independently 0 or 1, x and y represent each independently 0 or a positive integer, and $Y_{13}$ and $Y_{14}$ represent each independently a substituent correlated with polymerization.) as a raw material and polymerizing them.

71. A composition comprising at least one material selected from hole transporting materials, electron transporting materials and light emitting materials and the polymer compound according to any one of Claims 1 to 50.

72. A polymer composition comprising two or more polymer compounds containing a repeating unit of said formula (1), wherein the sum of the polymer compounds is 50 wt% or more based on the total amount.

73. The polymer composition according to Claim 72, comprising at least one polymer compound composed only of a repeating unit of said formula (1) and at least one copolymer containing a repeating unit of said formula (1) in a ratio of 50 mol% or more.

74. The polymer composition according to Claim 72, comprising two or more copolymers containing a repeating unit of said formula (1) in a ratio of 50 mol% or more, wherein the copolymers contain also mutually different repeating units.

75. The polymer composition according to Claim 72, comprising two or more copolymers containing a repeating unit of said formula (1) in a ratio of 50 mol% or more, wherein the copolymers are composed of the same combination of repeating units though the copolymerization ratios thereof are mutually different.

76. The polymer composition according to Claim 72, comprising two or more polymer compounds composed only of a repeating unit

of said formula (1).

77. The polymer composition according to any one of Claims 72 to 75, wherein at least one polymer compound contained in the polymer composition is a copolymer containing a repeating unit of said formula (1) in a ratio of 50 mol% or more, this copolymer contains also a repeating unit of said formula (13), and the molar ratio of the repeating unit of said formula (1) to the repeating unit of said formula (13) is 99:1 to 50:50.

78. The polymer composition according to Claim 72, 73 or 77, comprising at least one polymer compound composed only of a repeating unit of said formula (1) and at least one copolymer containing a repeating unit of said formula (1) in a ratio of 50 mol% or more, wherein this copolymer contains a repeating unit of said formula (1) and a repeating unit of said formula (13), and the molar ratio of the repeating unit of said formula (1) to the repeating unit of said formula (13) is 90:10 to 50:50.

79. The polymer composition according to Claim 72, 74 or 75, comprising a copolymer containing a repeating unit of said formula (1) and a repeating unit of said formula (13) wherein the molar ratio of the repeating unit of said formula (1) to the repeating unit of said formula (13) is 99:1 to 90:10, and a copolymer containing a repeating unit of said formula (1) and a repeating unit of said formula (13) wherein the molar ratio of the repeating unit of said formula (1) to the repeating unit of said formula (13) is 80:20 to 50:50.

80. A solution comprising the polymer compound according to any one of Claims 1 to 50.

81. A solution comprising the polymer composition according to any one of Claims 71 to 79.

82. The solution according to Claim 80 or 81, comprising two or more organic solvents.

83. The solution according to any one of Claims 80 to 82, comprising an organic solvent having a structure containing at least one benzene ring and having a melting point of 0ºC or less and a boiling point of 100ºC or more.

84. The solution according to any one of Claims 80 to 83, comprising at least one organic solvent selected from anisole, xylene, cyclohexylbenzene and bicyclohexyl.

85. The solution according to any one of Claims 80 to 84, wherein the ratio of a solvent having highest boiling point is 40 to 90 wt%.

86. The solution according to any one of Claims 80 to 85, wherein the concentration of polymer compounds in the solution is 0.5 to 2.0 wt%.

87. The solution according to any one of Claims 80 to 86, comprising a polymer compound composed only of a repeating unit of said formula (16) and a polymer compound composed of a repeating unit of said formula (16) and a repeating unit of said formula (17).

88. The solution according to any one of Claims 80 to 87, wherein the viscosity at 25ºC is 1 to 20 mPa·s.

89. The solution according to any one of Claims 80 to 88, further comprising an additive for controlling viscosity and/or surface tension.

90. The solution according to any one of Claims 80 to 89, further comprising an antioxidant.

91. The solution according to any one of Claims 80 to 90, wherein a difference between the solubility parameter of the solvent and the solubility parameter of the polymer compound is 10 or less.

92. A light emitting film comprising the polymer compound according to any one of Claims 1 to 50 or the polymer composition according to any one of Claims 71 to 79.

93. The light emitting film according to Claim 92, wherein quantum yield of emission is 50% or more.

94. An electrically conductive film comprising the polymer compound according to any one of Claims 1 to 50 or the polymer composition according to any one of Claims 71 to 79.

95. The electrically conductive film according to Claim 94, wherein the surface resistance is 1 KΩ/□ or less.

96. An organic semiconductor film comprising the polymer compound according to any one of Claims 1 to 50 or the polymer composition according to any one of Claims 71 to 79.

97. The organic semiconductor film according to Claim 96, wherein a larger value of electron mobility or hole mobility is $10^{-5}$ $cm^2/V/s$ or more.

98. An organic transistor comprising the organic semiconductor film according to Claim 96 or 97.

99. A method of producing the film according to any one of Claims 92 to 97, comprising using an inkjet method.

100. A polymer light emitting device comprising an organic

layer between an anode and a cathode wherein the organic layer comprises the polymer compound according to any one of Claims 1 to 50 or the polymer composition according to any one of Claims 71 to 79.

101. The polymer light emitting device according to Claim 100, wherein the organic layer is a light emitting layer.

102. The polymer light emitting device according to Claim 101, wherein the light emitting layer further contains a hole transporting material, electron transporting material or light emitting material.

103. The polymer light emitting device according to Claim 100, wherein the device comprises a light emitting layer and an charge transporting layer between an anode and a cathode wherein the charge transporting layer comprises the polymer compound according to any one of Claims 1 to 50 or the polymer composition according to any one of Claims 71 to 79.

104. The polymer light emitting device according to Claim 100, wherein the device comprises a light emitting layer and an charge transporting layer between an anode and a cathode and comprises an charge injection layer between the charge transporting layer and the electrode wherein the charge injection layer comprises the polymer compound according to any one of Claims 1 to 50 or the polymer composition according to any one of Claims 71 to 79.

105. The polymer light emitting device according to any one of Claims 100 to 104, wherein the maximum external quantum yield when a voltage of 3.5 V or more is applied between an anode and

a cathode is 1% or more.

106. A sheet light source, comprising the polymer light emitting device according to any one of Claims 100 to 105.

107. A segment display, comprising the polymer light emitting device according to any one of Claims 100 to 105.

108. A dot matrix display, comprising the polymer light emitting device according to any one of Claims 100 to 105.

109. A liquid crystal display, comprising as a back light the polymer light emitting device according to any one of Claims 100 to 105.